The specimens of *lumbricalis* from Cuba, as well as all of the *T. jamaicensis*, have two postoculars between the parietal and the upper labials. In this respect they differ from the single Navassan and two Santo Domingan specimens, which have but one postocular. The third specimen has two small postoculars on one side of the head. The parietal scale in the Santo Domingan specimens is relatively larger than in either of the two Porto Rican specimens having large parietals. A large series of blind-snakes is needed to determine whether the single postocular and the extremely large parietal are characters sufficiently constant to warrant specific distinction for the Santo Domingan form.

The synonymy of the species is therefore as follows:

TYPHLOPS LUMBRICALIS (Linnaeus)

1758. *Anguis lumbricalis* Linnaeus, Syst. Nat. 10th ed., **1:** 288 (type-locality, America).
1830. *Typhlops cubae* Bibron, in Sagra's Hist. Fis. Pol. Nat., **4:** Rept., p. 122, *pl. 22* (French ed. p. 204) (type locality, Cuba).

TYPHLOPS JAMAICENSIS (Shaw)

1802. *Anguis jamaicensis* Shaw, Gen. Zool. **3:** 588 (type locality Jamaica).
1844. *Typhlops richardii* Duméril and Bibron, Erp. Gén. **6:** 290 (type locality St. Thomas).
1844. *Typhlops platycephalus* Duméril and Bibron, Erp. Gén. **6:** 293 (type locality, Martinique, Porto Rico).
1904. *Typhlops lumbricalis* Stejneger, Rep. U. S. Nat. Mus. **1902:** 684. 1904. (Porto Rico.)

TYPHLOPS SULCATUS Cope

1868. *Typhlops sulcatus* Cope, Proc. Acad. Nat. Sci. Philadelphia **1868:** 128 (type locality Navassa Island).

TYPHLOPS DOMINICANA Stejneger

1830. *Typhlops cinereus* Guérin, Icon. Régne Anim., Rept., *pl. 18, f. 2* (Guadeloupe) (not of Schneider, 1801).
1893. *Typhlops platycephalus* Boulenger, Cat. Snakes Brit. Mus. **1:** 30 (Dominica) (not of Duméril and Bibron, 1844).
1904. *Typhlops dominicana* Stejneger, Rep. U. S. Nat. Mus. **1902:** 687. 1904.

ZOOLOGY.—*On the value of nuclear characters in the classification of marine gastropods.*[1] WILLIAM H. DALL, National Museum.

The so-called nucleus in marine gastropods consists of the protoconch, the succeeding larval or nepionic coils, and sometimes a transitional part prefiguring the adult sculpture.

The primal protoconch in *Gastropoda* is a smooth cup gradually increased by growth into the summit of a spiral. It may be small or

[1] Published by permission of the Director of the U. S. Geological Survey.

large but its fundamental character is the same. The succeeding or nepionic portion of the nucleus may remain smooth, or take on sculpture, and in more specialized forms this sculpture may be greatly varied and exhibit numerous degrees of complexity.

The primal protoconch, at first of a horny consistency, in most cases is promptly calcified and remains permanently as the apical point of the nuclear portion of the shell. In many of the species from deep water it is more or less inflated or even mammillary. In others the nepionic part tends by acceleration to disappear, and features characteristic of the adult spire are more or less prefigured in the portion immediately succeeding the protoconch. In the Caricellinae of the Volutidae and possibly in the genus *Stilus* of the Cerithiopsidae, alone the protoconch seems to retain its original uncalcified texture and to be discarded before the nepionic shell leaves its ovicapsule, a trace of its original presence being left in the form of a sharp point where calcification began on the axis of the primal coil.

In a much smaller group of gastropods the nucleus remains permanently horny and usually of a brownish color contrasting emphatically with the succeeding calcified adult sculpture which follows by an abrupt transition.

This horny nucleus may remain without sculpture (*Dolium*); with spiral lines furnished with prominent dermal hairs (*Fusitriton*); of with sculpture of varied complexity. In the latter case the sculpture is most commonly an oblique reticulation, more or less fine, with a less evident fine spiral striation. Where the reticulation is coarse the interstices are more conspicuous and in worn specimens give a punctate effect to the surface. One set of the oblique threads may be stronger than the other, giving a ribbed look to the nepionic surface, or the oblique sculpture may be weaker, or even absent, while the spiral sculpture assumes prominence or concentrates into one or more carinae.

In common with most students of the mollusca for some years I have regarded the nucleus characters as more or less indicative of genetic affinity, but recently having had to work over large numbers of deep water species, especially toxoglossate forms, and to utilize Hedley's fine monograph of the Australian Turridae, I have found this view to involve so many apparently preposterous combinations of unlike things and separation of similar things, that I have come to the conclusion that this view cannot be maintained.

The simple smooth inflated protoconch as a modification of the original form is found among others to occur in the deep water species of the following very diverse groups:

TOXOGLOSSA

Turritidae, Cancellariidae

RHACHIGLOSSA

Olivellidae, Marginellidae, Fasciolariidae, Chrysodomidae, Columbellidae, Muricidae

GYMNOGLOSSA

Melanellidae

TAENIOGLOSSA

Triviidae, Triphoridae, Cerithiopsidae, Trichotropidae, Rissoidae

Further search would doubtless add other families to this list.

The most common form of the horny nucleus with oblique reticulation was originally caught in the tow net and described as a genus *Sinusigera*, and I have therefore utilized the name by calling it the *Sinusigera* nucleus.

The form dehiscent in the ovicapsule can be denominated the *Caricella* nucleus. The smooth or nearly smooth form which occurs in the Tun and Helmet shells might be named the *Tonna* nucleus.

Lastly, the elevated, spirally ciliated form found in *Austrotriton* and probably in other *Cymatiidae*, can be named the *Triton* nucleus.

The following groups among others include species with horny nuclei:

TOXOGLOSSA

Turridae

RHACHIGLOSSA

Caricellinae, Muricidae

TAENIOGLOSSA

Tonnidae, Cassididae, Cymatiidae, Triphoridae, Cerithiopsidae, Trichotropidae

It is a material fact that no sedentary, parasitical, or exclusively littoral species is known to have a *Sinusigera* nucleus. Also that the inflated simple nucleus is found chiefly among species living in relatively deep water and becomes more general as we compare species of whatever genus from still deeper water. No instance is known to me where species with a well developed nucleus of this type has a floating larva.

The species with a *Sinusigera* nucleus, as far as known, float in the larval state, and the horny shell in cases where a suitable substratum is inaccessible sometimes reaches as many as seven whorls when it would normally have only half as many.

The horny shell destitute of limy coating is lighter than the calcified forms and thus adapted to the floating status. Carried by currents, genera having this type of nucleus are distributed widely. Those whose nepionic life is chiefly confined to the fluids in the ovicapsule, are comparatively restricted in range.

The conclusions indicated are that the differences above specified are due to adaptation for a floating larva or the reverse, and should not be regarded as genetically fundamental.

When two marine forms of similar anatomical structure exhibit different nuclei, I conclude that the adaptive modification is not of serious value in classification, and in most cases should not be considered as of more than sectional or subgeneric importance. The parallel occurrence of similar nuclei in widely different groups of families is obviously no indication of genetic affinity.

The variations in sculpture of forms deriving from the *Sinusigera* type, are probably, like the sculptural variations of the adult shell, of little more than specific value.

PROCEEDINGS OF THE ACADEMY AND AFFILIATED SOCIETIES

THE ENTOMOLOGICAL SOCIETY

358TH MEETING

The 358th meeting of the Entomological Society was held May 3, 1923, with Vice-President Böving in the chair and 35 persons present.

Program: G. F. WHITE: *Insect deseases.* The speaker gave a survey of the field of insect deseases, pointing out the different groups into which the causative agents are classified, the four main divisions of the study of insect pathology, and the qualifications that students of the subject should have. He showed that the field of the pathologist touches that of the bacteriologist, the protozoologist, the mycologist, the helminthologist, and the entomologist. It practically monopolizes a large portion of two other fields, those limited to filterable viruses and certain cell inclusions. The relative importance of the different phases was indicated graphically by diagrams.

J. M. ALDRICH: *A unique egg-laying apparatus in a tachinid fly.*

A. C. BAKER, *Recording secretary pro-tem.*

SPECIAL MEETING

A special meeting was held by invitation in the Laboratory of Bee Culture at Somerset, Maryland, May 23, 1923. Eighteen persons were present. The following papers relating to bee culture and the work of the Laboratory